

การผลิตน้ำมันหล่อลื่นพื้นฐานจากน้ำมันเตาโสหนักโดยไฮโดรไอโซเมอไรเซชัน

นางสาวอัมพร โฉมงาม



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต
สาขาวิชาปิโตรเคมี

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ลิขสิทธิ์ของบัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

**PRODUCTION OF LUBE BASE OIL FROM HEAVY DISTILLATE
BY HYDROISOMERIZATION**



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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

อัมพร โฉมงาม การผลิตน้ำมันหล่อลื่นพื้นฐานจากน้ำมันเตาโสหนักโดย
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การศึกษาวิจัยนี้ได้ให้กรรมวิธีสำหรับการปรับปรุงคุณภาพน้ำมันเตาโสหนักจากแหล่งต่าง เพื่อใช้
เป็นน้ำมันหล่อลื่นพื้นฐาน ซึ่งกรรมวิธีนั้นเกี่ยวข้องกับปฏิกิริยาไฮโดรคิซัลเฟอไรเซชัน น้ำมันเตาโสหนัก
ผ่านการกำจัดไซในเบื้องต้นโดยมีตัวเร่งปฏิกิริยาที่เตรียมขึ้นประกอบด้วยโมลิบดีนัม นิกเกิล และโคบอลต์
บนตัวรองรับอะลูมินา ซึ่งปฏิกิริยานี้ได้เลือกทำในสภาวะที่เหมาะสมจนได้รับผลิตภัณฑ์น้ำมันผ่านปฏิกิริยา
ในเบื้องต้นที่มีปริมาณกำมะถันน้อยกว่า 0.001% หลังจากนั้นได้นำน้ำมันผ่านปฏิกิริยาเบื้องต้นไปทำ
ปฏิกิริยาไฮโดร ไอโซเมอไรเซชันต่อไปด้วยตัวเร่งปฏิกิริยาประกอบด้วยแพลตินัม และฟลูออไรต์ในสภาวะ
คัดเลือกไว้จนได้ผลิตภัณฑ์น้ำมันที่ประสงค์ขั้นสุดท้ายที่มีสมบัติทางกายภาพและทางเคมีที่ดีขึ้น น้ำมันนี้มี
ความเหมาะสมโดยเฉพาะสำหรับใช้เป็นน้ำมันหล่อลื่นพื้นฐาน

ศูนย์วิทยทรัพยากร
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This research study provides a process for upgrading the heavy distillate from Fang resource to be used as a lubricating base oil. The process involves hydrodesulfurization of dewaxed heavy distillate with a prepared catalyst containing molybdenum, nickel, and cobalt on an alumina support, under selected optimum conditions, to result in a desulfurized oil product containing less than 0.001% sulfur. The desulfurized oil was further hydroisomerized with a catalyst containing platinum and fluoride, under selected conditions, to yield a final product having improved physical and chemical properties. This oil is particularly suitable for use as a lubricating base oil.



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CONTENTS

	Page
ABSTRACT IN THAI.....	iv
ABSTRACT IN ENGLISH.....	v
ACKNOWLEDGEMENTS.....	vi
CONTENTS.....	vii
LIST OF TABLES.....	ix
LIST OF FIGURES.....	xii
ABBREVIATIONS.....	xvi
 CHAPTER	
1. INTRODUCTION.....	1
2. THEORETICAL CONSIDERATIONS.....	3
2.1 Sources.....	3
2.1.1 Crude Oil and Its Composition.....	3
2.1.2 Refining Process.....	5
2.1.2.1 Crude Oil Distillation.....	5
2.1.2.2 Fang Refinery.....	7
2.2 The Basic Function of Lubricant.....	8
2.2.1 The Reduction of Friction.....	8
2.2.2 Heat Removal.....	10
2.2.3 Containment of Contaminants.....	10
2.3 Necessary Properties of a Lubricant.....	10
2.3.1 Physical Properties.....	11
2.3.2 Chemical Properties.....	14
2.4 Base Oil Composition, Properties and Structure Relationship.....	15

2.5 Base oil manufacturing methods.....	17
2.5.1 Conventional methods.....	17
2.5.2 Modern catalytic process.....	20
2.5.2.1 Special base oil by wax isomerization.....	23
2.5.2.2 Hydrodesulfurization.....	28
3. EXPERIMENTATION.....	35
3.1 Materials.....	35
3.2 Apparatus and instruments.....	36
3.3 Procedure.....	40
3.3.1 Dewaxing of heavy distillate by methyl ethyl ketone.....	40
3.3.2 The physical and chemical properties determination of dewaxed oil.....	40
3.3.3 Oil yields determination in dewaxed oil.....	41
3.3.4 Measuring pore volume of alumina support CS331-3 type.....	41
3.3.5 Preparing of catalysts.....	42
3.3.6 Hydrodesulfurization process.....	43
3.3.7 Hydroisomerization process.....	46
4. RESULTS AND DISCUSSION.....	49
5. CONCLUSION.....	85
REFERENCES.....	87
APPENDIX.....	90
VITA.....	96

LIST OF TABLES

TABLES	Page
2.1 Petroleum Fractions.....	7
2.2 Lubricating Oil Properties of Some Typical Hydrocarbon.....	16
2.3 Effect of Processes on Properties and Chemical Composition of Lubricating Oil Base Stocks.....	19
2.4 Desulfurization Reactions of Sulfur Compounds.....	31
3.1 Specifications of the C20-7-06 and T-2563 heterogeneous catalysts.....	36
4.1 Properties of the original heavy distillate.....	49
4.2 The properties of the dewaxed oil.....	51
4.3 The properties of heavy distillate, dewaxed oil and isomerized oil.....	82
A1 The molecular weight distributions of heavy distillate dewaxed oil, and isomerized oil.....	91
A2 The molecular weight distributions of components in desulfurized oils from reaction using various catalyst types.....	92
A3 The sulfur content of desulfurized oil and physical properties of desulfurized lube fraction from reaction using various types of catalysts.....	93
A4 The molecular weight distribution of components in desulfurized oil produced at various reaction temperatures.....	94
A5 The sulfur content of desulfurized oil and physical properties of desulfurized lube fraction produced at various reaction temperatures.....	95

A6	The molecular weight distribution of components in desulfurized oil produced under various hydrogen pressures.....	96
A7	The sulfur content of desulfurized oil and physical properties of desulfurized lube fraction produced under various hydrogen pressures.....	97
A8	The molecular weight distributions of components in desulfurized oil after various reaction times.....	98
A9	The sulfur content of desulfurized oil and physical properties of desulfurized lube fraction after various reaction times.....	99
A10	The sulfur content of desulfurized oil and physical properties of desulfurized oil produced using catalyst concentrations.....	100
A11	The sulfur content of isomerized oil and physical properties of isomerized lube fraction produced using various catalyst concentrations.....	101
A12	The molecular weight distribution of components in isomerized oils produced at various reaction temperatures.....	102
A13	The physical properties of isomerized oil produced at various reaction temperatures.....	103
A14	The molecular weight distribution of components in isomerized oil produced under various hydrogen pressures.....	104
A15	The physical properties of isomerized oil produced under various hydrogen pressures.....	105
A16	The molecular weight distributions of components in isomerized oil after various reaction times.....	106
A17	The physical properties of isomerized oil after various reaction times.....	107

A18 The molecular weight distributions of components in isomerized oils produced using various catalyst concentrations.....	108
A19 The physical properties of isomerized oil produced using various Pt/F catalyst concentration.....	109



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

LIST OF FIGURES

FIGURES	Page
2.1 Example of hydrocarbons.....	5
2.2 Example of non- hydrocarbons.....	6
2.3 Crude distillation unit.....	7
2.4 Concept of dynamic viscosity.....	10
2.5 Lube processing.....	20
2.6 Typical hydrogenation reactions.....	23
2.7 Scheme for wax ismerized base oil.....	27
2.8 Reaction mechanism for bifunctional reactions.....	29
2.9 Typical residual molecule.....	31
2.10 The activation of Mo/Co on alumina desulfurization catalyst.....	34
2.11 The step in desulfurization of thiol on molybdenum.....	35
3.1 Floor stand reactor.....	38
3.2 Reactor fitting.....	39
4.1 The percents by weight of oil and wax parted by solvent dewaxing process.....	51
4.2 Effect of catalyst types on sulfur content in hydrodesulfurization.....	55
4.3 Effect of catalyst types on color in hydrodesulfurization.....	55
4.4 Effect of catalyst types on VI in hydrodesulfurization.....	56
4.5 Effect of catalyst types on pour point in hydrodesulfurization.....	56

4.6 Effect of reaction temperature on sulfur content of desulfurized oil.....	58
4.7 Effect of reaction temperature type on color of desulfurized oil.....	58
4.8 Effect of reaction temperature type on viscosity of desulfurized oil.....	59
4.9 Effect of reaction temperature type on pour point of desulfurized oil.....	59
4.10 Effect of hydrogen pressure on sulfur content of desulfurized oil.....	61
4.11 Effect of hydrogen pressure on color of desulfurized oil.....	61
4.12 Effect of hydrogen pressure on viscosity index of desulfurized oil.....	62
4.13 Effect of hydrogen pressure on pour point of desulfurized oil.....	62
4.14 Effect of reaction time on sulfur content of desulfurized oil.....	64
4.15 Effect of reaction time on color of desulfurized oil.....	64
4.16 Effect of reaction time on viscosity index of desulfurized oil.....	65
4.17 Effect of reaction time on pour point of desulfurized oil.....	65
4.18 Effect of catalyst concentration on sulfur content of desulfurized oil.....	67
4.19 Effect of catalyst concentration on color of desulfurized oil.....	67
4.20 Effect of catalyst concentration on viscosity index of desulfurized oil.....	68

4.21 Effect of catalyst concentration on pour point of desulfurized oil.....	68
4.22 Effect of reaction temperature on pour point of isomerized oil.....	71
4.23 Effect of reaction temperature on viscosity index of isomerized oil.....	71
4.24 Effect of reaction temperature on color of isomerized oil.....	72
4.25 Effect of hydrogen pressure on pour point of isomerized oil.....	74
4.26 Effect of hydrogen pressure on viscosity index of isomerized oil.....	74
4.27 Effect of hydrogen pressure on color of isomerized oil.....	75
4.28 Effect of reaction time on pour point of isomerized oil.....	77
4.29 Effect of reaction time on viscosity index of isomerized oil.....	77
4.30 Effect of reaction time on color of isomerized oil.....	78
4.31 Effect of catalyst concentration on pour point of isomerized oil.....	80
4.32 Effect of catalyst concentration on viscosity index of isomerized oil.....	80
4.33 Effect of catalyst concentration on color of isomerized oil.....	81
4.34 Heavy distillate, dewaxed oil, desulfurized oil distillate cut, and isomerized oil at the optimum conditions for each processing step.....	83

A1 The GC/MS Chromatograms of heavy distillate (a), dewaxed oil (b), desulfurized oil (c) and disomerized oil (d).....	110
A2 ¹³ C-NMR spectrum of dewaxed oil.....	111
A3 Thermooxidation stability curve of dewaxed oil.....	112
A4 The GC/MS Chromatograms of desulfurized oil from using various catalyst types.....	113
A5 The GC/MS Chromatograms of desulfurized oil produced at various reaction temperatures.....	114
A6 The GC/MS Chromatograms of desulfurized oil produced under various hydrogen pressures.....	115
A7 The GC/MS Chromatograms of desulfurized oil after various reaction times.....	116
A8 The GC/MS Chromatograms of desulfurized oil produced using various catalyst concentrations.....	117
A9 ¹³ C-NMR spectrum of desulfurized oil.....	118
A10 Thermooxidation stability curve of desulfurized oil.....	119
A11 The GC/MS Chromatograms of isomerized oil produced at various reaction temperatures.....	120
A12 The GC/MS Chromatograms of isomerized oil produced under various hydrogen pressures.....	121
A13 The GC/MS Chromatograms of isomerized oil after various reaction times.....	122
A14 The GC/MS Chromatograms of isomerized oil produced using various catalyst concentrations.....	123
A15 ¹³ C-NMR spectrum of isomerized oil.....	124
A16 Thermooxidation stability curve of isomerized oil.....	125

ABBREVIATIONS

°C	=	Celcius Degree
°F	=	Fahrenheit Degree
VI	=	Viscosity Index
cSt	=	Centistoke Unit
TG	=	Thermal Gravimetry
HD	=	Heavy Distillate
rpm	=	revolutions per minute
ppm	=	part per million
HDS	=	Hydrodesulfurization
HDI	=	Hydroisomerization
t _R	=	retention time (min)
%C _a	=	percent of aromatic carbon
%C _p	=	percent of paraffinic carbon
%C _n	=	percent of naphthenic carbon

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